**Unit Planner Chapter 6 Algebra 2 Technology Differentiation Critical Thinking**

**Teacher: Solek Unit Title: Solving Quadratic Equations**

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| **Standards / Benchmarks:**  N3 Use number sense to estimate and determine if solutions are reasonable  N4 Determine whether an exact or approximate answer is necessary  N5 Select and use appropriate computational methods and tools  N7 Justifying reasonableness of solution and verifying results  A1 Translate real-world situations into algebraic expressions, equations and inequalities  A3 Use tables and graphs as tools to interpret algebraic expressions, equations and inequalities  M3 Estimate, compute and apply physical measurements  M4 Demonstrate the concept of measurement as it applies to real-world experiences  G1 Identifying, describing, comparing, constructing and classifying geometric figures in two and three  Dimensions  D2 recognizing that data that relate two variables as linear, exponential or otherwise in nature  P1 Model the concepts of variables, functions and relations  P2 Translating between tabular, symbolic or graphic representations of functions  P3 Recognize the behavior of families of elementary functions, such as polynomial, trigonometric and  exponential functions  P4 analyze the effects of changes in parameters  P5 Analyze real-world relationships that can be modeled by elementary functions | | |
| **Standards Analysis:**  A. Quadratic Equations   1. Graph a quadratic equation in standard form 2. Use factoring to solve a quadratic equation 3. Solve a quadratic equation by completing the square 4. Use the quadratic formula to solve a quadratic equation 5. Find the quadratic equation given its roots 6. Find the discriminant and give the nature of the roots. | **Critical Questions or Statements**:  How many methods are there to solve quadratic equations? Why do we need so many?  If we know the roots of a quadratic equation, can we find the equation?  What makes reducing, multiplying and dividing rational expressions different from adding and subtracting rational expressions?  How do you solve a rational equation? | **Relevance:**  Use a motion detector to analyze the time-distance graph of a tossed ball.  Model the shapes of architectural structures like the arch or a suspension bridge.—can you locate more of these examples? |
| **Pre-assessment tools / strategies:**  KWL worksheet—post on edline  Informal observation  Online self checks  5 minute opener  Homework for previous day | **Differentiation strategies:**  Keep a journal naming the steps for examples worked in this chapter  Choose \_\_\_\_\_ problems from the page  Use Algebra Tiles to demonstrate FOIL  Flexible grouping for tiered assignment (use easy medium hard activities from KUTA)  Determine the best method to solve a quadratic equation |
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| **Final Assessment(s) - Body of Evidence**   1. Quiz solving equations by graphing and factoring 2. Quiz solving equations using the quadratic formula. 3. Quiz writing equations given the roots. 4. Test on graphing quadratic equations, solving quadratic equations using factoring and finding the quadratic equation given the roots 5. Test on solving quadratic equations using completing the square and the quadratic formula, finding the discriminant and giving the nature of the roots, and graphing a quadratic equation in vertex form | **Instructional Strategies:**   1. Use graph paper to show graphs and solutions of quadratic equations—small groups 2. Use the graphing calculator to show graphs and solutions of quadratic equations---use projector 3. Use the guess and check method to factor and solve quadratic equations—demonstrations by teacher and students at white board. 4. Use the grouping method and A \* C to factor and solve quadratic equations---powerpoint presentation. 5. Memorize the quadratic formula. 6. Examine the characteristics of the determinant and its effect on the type of solutions—key concept from text book—use projector. 7. Design a flow chart using Inspiration on how to solve a quadratic equation |
| **Formative assessments / assignments** – including classroom and homework – How will you know students have learned this?   1. Keep a journal naming the steps for examples worked 2. p. 291 # 15 – 25; 33 - 43 odd 3. Practice 6-2   3. Diagram a method to forecast the number of solutions to a quadratic equation; p. 304 #15 – 43  4. p. 311 # 25-41 odd p. 318 # 15 – 33 odd  5. Debate the four methods for solving quadratic equations; Practice 6-6  6. p. 333 # 15 – 45 odd  7. Determine the best method to solve a quadratic equation; p. 341 # 1 – 28  8. Ch 6 Cumulative Review | |